



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,485	01/05/2006	Satoru Ishigaki	Q76596	8278
23373 7590 06/12/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER THOMPSON RUMMEL, PONDER N	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 06/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,485	Applicant(s) ISHIGAKI ET AL.	
	Examiner Ponder N. Thompson-Rummel	Art Unit 1709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on January 5 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/5/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 5, 10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: applying the resist to a substrate (print circuit board), pre-baking or pre-drying and patterning the substrate with dried resist, exposing the resist then developing the resist.

2. Claims 5, 10 and 12 provides for the use of the resist composition, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 5, 10 and 12 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 6–8 are rejected under 35 U.S.C. 102(b) as being anticipated by Showa (WO 03/048860).

With regards to claims 6, Showa discloses a photosensitive resin for dipping (dipping method – page 34 line 25) that comprises:

- A. a resin having two or more polymerizable unsaturated bonds within one molecule (page 4, lines 21-23) and were a part or whole resin have one or more carboxylic groups within one molecule (page 5, lines 1-4), preferably a compound (resin) obtained by reacting an acrylic acid with a copolymer of methyl methacrylate and glycidyl methacrylate (page 19, lines 11-13);
- B. a photopolymerization initiator such as benzoin, benzoin ethyl ether, Michler's ketone, benzyl, anthraquinones, thioxanthone, etc. (page 22, lines 5-27);
- C. water (page 4, line 25 and abstract); and

Art Unit: 1709

- D. an organic solvent, such as 1,3-propanediol (an 1,3 diol compound – page 28, line 17), ethyl lactate and methyl lactate (hydroxycarboxylate ester – page 29, line 3)

With respect to claim 7 and 8, Showa additionally discloses a method of forming a photosensitive resin film onto an insulating substrate having an electrically conductive metal layer (a printed board – page 34, line 15) by dipping the substrate into the photosensitive resin composition and then pulling it up (page 34, lines 23-37).

Claim Rejections - 35 USC § 103

- 5. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morigaki (US Patent 6,238,841).

With respect to claims 1-3 and 6 Morigaki discloses a photosensitive resist composition comprising:

- A. A resin that contains a pre-polymer obtained by adding ethylencially unsatutrated monocarboxylic acid to an unsaturated or saturated polybasic acid anhydride (column 4, lines 61-65);
- B. A photopolymerization initiator such as benzoin methyl ether (column 7, line 62), benzoin ethyl ether (column 7, line 62), anthraquinone (column 8, line 1) and thioxanthone (column 8, line 2);
- C. Water (abstract and column 2, line 13); and

Art Unit: 1709

D. An organic solvent, such as those having a hydroxyl group such as ethanol, propanol, butanol, diethylene glycol and solvents selected from an alpha-hydroxycarboxylate ester such as ethyl lactate and butyl lactate (column 9, lines 11 and 12).

It would have been obvious to one of ordinary skill in the art to select organic solvent having a hydroxyl group and an organic solvent having an alpha-hydroxycarboxylate ester as those solvents, which, as disclosed by Morigaki, can optionally be used in combination with each other within the photosensitive resist (column 9, lines 20-22).

With respect to claims 4-5 and 7-12; Morigaki further discloses a method of producing a pattern on a substrate wherein the photosensitive resist composition of comprising (A) – (D) is applied to a substrate, such as a copper clad laminate used to manufacture printed wiring boards (column 11, lines 16-17), by dipping (column 11, lines 14-15) and then drying the substrate (column 11, lines 19-22), exposing the patterned substrate by ultraviolet irradiation (column 11, lines 23-31) and developing the film with water or a diluted alkali aqueous solution (column 11, lines 33-40).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ponder N. Thompson-Rummel whose telephone

Art Unit: 1709


number is 571-272-9816. The examiner can normally be reached on Monday-Friday 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ptr

P.T.R.


ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER